

Remarks

Applicant has cancelled claim 11 to address the Examiner's 112 rejection.

The Examiner has submitted that in "response to the argument that the combination of Stelle and Balczun would not function, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference" but "what the combined teaching of the references would have suggested to those of ordinary skill in the art." (Official Action, 1/30/07, p.11.) The Examiner then states that "Balczun is only being used to teach an elastomeric bearing between two elements." (*Id.*)

Applicant agrees with the Examiner's first statement that one has to look at what the references teach as a whole, however, Applicant disagrees with the Examiner's second statement that it is proper to pull select elements from a "secondary" reference without regard for what the "secondary" reference teaches as a whole. "We do not pick and choose among the individual elements of assorted prior art reference to recreate the claimed invention" but rather, we look for "some teaching or suggestion in the references to support their use in a particular claimed combination." *Symbol Technologies, Inc. v. Opticon, Inc.*, 935 F.2d 1569, 1576 (Fed. Cir. 1991). Therefore, one can not simply pick out of feature of Balczun for combination with Stelle without considering the overall teachings of Balczun.

To that end, Balczun is primarily directed toward solving a noise problem. For example, Balczun states a "particular problem with such rod ends is that this rigid construction forms a linking path for the transmission of vibration, some of which takes the form of sound energy." (Col. 1, Ins. 30-32.) Balczun further states that as "efforts are made to make the cabs of these trucks . . . quieter, something must be done to isolate these transmission paths" and that the "present invention proposes to bond an elastomeric layer to at least one of the inner or outer elements to interrupt (isolate) this di-

rect transmission path.” (Col. 1, Ins. 33-38.) Therefore, Balczun teaches it is of primary importance to completely isolate the members from each other because “[i]t will do little good to provide isolation . . . if there are hardline connections through which sound can migrate into the cab” and that “the present invention halts this migration.” (Col. 2, Ins. 59-64.)

This is why the Applicant explained why the combination of Stelle with Balczun would not result in a system that actually functioned. For example, when looking at the teachings of Stelle, Applicant noted that Stelle teaches the “compressive forces of the balance springs 120 cooperate with the tension spring 100 . . . to prestress the flexible joint in a first position.” (Col. 4, Ins. 42-45.) Therefore, Stelle teaches that compressive force is generated by the balance springs and the tension springs, which facilitates movement of the arm but also has a tendency to bias the arm back to the original position. However, if one were to completely isolate the first member from the second member by placing a compressed elastomer therebetween, the springs would no longer function because the elastomer would crush them. This would result in an arm that would not be movable, which can not be obvious. It should be noted that Balczun clearly teaches that there must be complete isolation between the members to effectively isolate the transmission of noise. However, when complete isolation is achieved, the arm in Stelle is non-functional. It cannot be obvious to modify Stelle in a manner that would result in a non-operative system. In addition, it is inappropriate to modify Stelle with the elastomer taught in Balczun without regard to the primary teachings of Balczun. “There must be some reason, suggestion, or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination. That knowledge can not come from the applicant's invention itself.” *In re Oetiker*, 977 F.2d, 1443, 1447 (Fed. Cir. 1992). *See also In re Vaeck*, 947 F.2d 488, 493, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991). In this case, when reading both Stelle and Balczun, there is no teaching in either reference that enables one to arrive at the presently claimed invention. Rather, Applicant submits that it is the presently pending

claims that are providing the motivation for modification of Stelle in a manner that Balczun actually teaches away from.

The Examiner submits that the "insertion of an elastomeric bearing between the links would not prevent the device from functioning." (Official Action, 1/30/07, p. 11.) However, the Examiner provides absolutely no reasoned basis for this statement. Applicant has explained why the spring biasing system taught in Stelle would not function if modified with the elastomer taught in Balczun as the Examiner has submitted. The burden has shifted to the Examiner to explain how the teachings of Stelle and Balczun can be resolved without abandoning the teachings of either one or the others primary teachings.

With regard to Applicant's argument that the elastomer can not be used with the springs in Stelle, the Examiner has submitted that "the applicant focus on the structure of the individual links that is in the instant application and not in the prior art." (Official Action 1/30/07, p. 12.) Again, the Examiner appears to be saying not to look at what the prior art teaches as a whole. The Examiner has cited both Stelle and Balczun against the pending claims. Applicant's analysis is therefore properly directed toward what these references teach as a whole and it is inappropriate look to the presently pending claims as a motivation for modifying Stelle according to Balczun. That the Stelle includes springs for pre-stressing is highly relevant, because if one was to modify Stelle with the elastomer taught in Balczun, the springs would not function nor would the arm be rotatable according to the teachings of Stelle. The motivation for modification of Stelle suggested by the Examiner must come from the prior art, not from focusing on the structure of the individual links that is in the instant application.

The Examiner has further stated that the "elastomeric bearing of Balczun does allow for relative rotation in the same way that the instant application does." (Official Action 1/30/07, p. 12.) Applicant disagrees. The present invention is directed toward a link assembly for a robotic arm that allows for a high degree of versatility and precise

movement. Nowhere does Balczun teach, disclose or suggest that the vibration damping elastic bearing used for coupling "trucks, tractors and off-highway vehicles" can function to allow movement in a robotic arm assembly. That the elastomer may allow for some degree of movement between the members when large exterior forces are applied, in no way suggests that this heavy-duty coupling allows "for relative rotation in the same way that the instant application does." In fact, the Examiner seems to acknowledge that the bearing in Balczun does restrict movement stating that the "bearing of Balczun is used to remove unwanted vibration and does not remove all movement from the system." (*Id.*) (emphasis added) The bearing in Balczun will restrict movement of the arm in Stelle and does not function as required by the claims. For example, claim 1 recites that "the layer is maintained under compression by said at least one wire such that a bending movement between the members produces shear movement within the elastomer and substantially no compressive movement as a result of the relative movement between the said first and said second members" and claim 36 recites that "said elastomeric material maintained under compression by said at least one wire such that substantially no compressive deformation of said elastomeric material occurs during rotation of said third link about the point of rotation relative to said first link." Alternatively, Balczun clearly teaches that the "elastomeric member" is only "precompressed in an amount of about 30% of an unstressed thickness" and further described how the compression may vary. (Abstract; See, Col. 3, Ins. 33-48.) Nowhere does Balczun teach or suggest that substantially no compressive movement or deformation occurs in the elastomer taught in Balczun, but in fact, suggests the opposite.

The Examiner has further stated that when "movement does occur (one of the link elements is moved) there is a shearing action in the elastomeric bearing like that of the instant application." (Official Action 1/30/07, p. 13.) Applicant can find absolutely no reference in Balczun that supports this assertion. In fact, it appears that the elastomeric bearing can be compressed and while compression and compressive force is discussed, shearing is never once mentioned in Balczun. (Col. 2, Ins. 34-38; Col. 3, Ins.

33-48; Col. 4, Ins. 20-25; Col. 5, Ins. 2-7 & 40-45; Col. 6, Ins. 38-44.) Accordingly, Applicant disagrees with the Examiner's reading of Balczun.

The Examiner also states that "it is the examiners position that Stelle in view of Raines would result in a functioning device that has a bearing element disposed between the links to protect the links from being overstressed well still allowing for relative movement between the links since Raines is only being used to teach the use of a bearing element between parts." (Official Action 1/30/07, p. 13) (emphasis added). Applicant again submits that it is inappropriate to pick and choose elements or limitations from a reference without regard for what the reference teaches as a whole.

Raines teaches use of "a plurality of reinforcing interleaves of substantially rigid material each arranged to line in a respective plane" and that "[s]uitable material for the reinforcing interleaves include substantially rigid material such as steel." (Col. 1, In. 67 – Col. 2, In. 1 & 66-7.) Therefore, if one were to use the teaching of Raines to modify the arm of Stelle, one would arrive at a robotic arm having an elastomeric bearing including steel reinforcing interleaves. While the Examiner has submitted that Raines is only being used to teach the use of a bearing element between parts, the bearing elements taught in Raines include steel reinforcing members. In fact, this is the primary teaching in Raines. Applicant submits that there is absolutely no teaching in any of the cited art that teaches discarding the primary teaching of Raines. Rather, the only motivation for doing so is to formulate a rejection of the presently pending claims.

If the elastomeric bearing of Raines were positioned between the members in Stelle, the resulting device would be inoperable as the steel reinforcing members would severely restrict if not completely impede any movement of the arm assembly. In addition, the springs in Stelle would be crushed by the elastomeric bearing with steel reinforcing members thereby eliminating the preload on the system. Such a modification can not be obvious as the resulting device would be inoperable and work against the stated objects of the invention of Stelle.

In addition, as Applicant submitted previously and the Examiner declined to address, there is absolutely no teaching in Raines that the elastomeric bearing may be used for facilitating defined movement. *In re Arkley*, 455 F.2d 586, 587-88, 172 U.S.P.Q. 524, 526 (C.C.P.A. 1972). For example, claim 1 recites "the layer is maintained under compression by said at least one wire such that a bending movement between the members produces shear movement within the elastomer and substantially no compressive movement as a result of the relative movement between the said first and said second members." Claim 36 recites "said elastomeric material maintained under compression by said at least one wire such that substantially no compressive deformation of said elastomeric material occurs during rotation of said third link about the point of rotation relative to said first link; and said elastomer material permitting shear deformation of said elastomer material during articulation of the assembly." Nowhere does Raines teach, disclose or suggest these limitations and in the Examiner's numerous Official Actions, the Examiner has yet to point to where this teaching is may be found.

As an additional note, the Examiner has identified the motivation for combining Stelle with Balczun as "providing isolation of transmitted vibrations" (Official Action 1/30/07, p. 3) and for combining Stelle with Raines as "to protect the links from over-stress due to outside stimuli." (Official Action 1/30/07, p. 9) First, with respect to Balczun, a system is provided "to make the cabs of these trucks . . . quieter" and that the "present invention proposes to bond an elastomeric layer to at least one of the inner or outer elements to interrupt (isolate) this direct transmission path." (Col. 1, Ins. 33-38.) Stelle is directed toward a robotic arm. The vibrations caused by the movement of a road vehicle and transmitted to the cab of the vehicle have absolutely no application with a robotic arm. There are no vibrations that are transmitted in Stelle that need to be stopped and the Examiner has failed to explain how the motivation of stopping vibrations being transmitted to the cab of a vehicle has anything what-so-ever to do with a robotic arm. Second, with regards to Raines, it is directed to a relieving stress on un-

derwater oil well pipelines so as to accommodate the effect of movement of a floating platform relative to the sea bed without undue strain on interconnecting pipeline. (Abstract; Col. 1, lines 12-17.) Again, the Examiner states that the motivation is to relieve stress on the robotic arm, but the Examiner hasn't identified what the possible source of outside stress on the robotic arm might be. The outside stresses exerted on a pipeline due to the movement of a floating structure relative to the ocean floor (as taught in Raines) has absolutely nothing to do with the robotic arm taught in Stelle. The Examiner has simply pointed to the problems solved in Balczun (stopping transmission of noise to the cab of a vehicle) and Raines (preventing overstress of an undersea pipeline) as the motivation for modifying a robotic arm (which does not suffer from either of these problems) without explanation as to why someone skilled in the art would be taught (without the benefit of the present application) to make such a modification. In fact, there is no motivation other than using the presently pending claims as a roadmap to formulate an obviousness rejection, which is inappropriate.

It is respectfully requested that the Examiner withdraw the rejections of the presently pending claims based on a combination of Stelle with Balczun or Stelle with Raines as the pending claims can not be obvious in view of these suggested combinations. Claims 1-2, 4, 6-10, 12-13, 15, 17-26, 28-33 and 36, are in order for allowance and early notice to that effect is respectfully requested.

Respectfully submitted,

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